**STATEMENT OF RON MEISSEN, SENIOR DIRECTOR, ENVIRONMENT, HEALTH AND SAFETY ENGINEERING BAXTER INTERNATIONAL INC.**

**REGARDING CLIMATE CHANGE**

**Before the Science Committee of the House of Representatives**
**June 8, 2005**

Mr. Chairman and members of the Committee, I would like to thank you for this opportunity to testify today on climate change and related activity within the business community, particularly at my company, Baxter International Inc.

I speak to you today both as a representative of one company that has been recognized as being at the leading edge of corporate environmental stewardship and as a practicing expert in the field. My name is Ron Meissen, and I serve as senior director of environment, health and safety engineering at Baxter. In addition to my professional interest in the subject of climate change and sustainability, I have a strong personal interest in this subject as well – I am currently pursuing my PhD at the University of Wisconsin in Madison in sustainable development. The focus of my dissertation research, which I am hoping to complete in the next year, is the development and application of a strategic business model to reduce energy related greenhouse gas emissions.

In my role at Baxter, I coordinate the company's safety, occupational health, industrial hygiene and environmental engineering professionals as they lead their respective functions for the company and provide their expertise to Baxter's facilities and employees throughout the world. I also oversee Baxter's initiatives related to climate change and greenhouse gas emissions reductions.

Baxter International Inc. is a global healthcare company based in Deerfield, Illinois that assists healthcare professionals and their patients with treatment of complex medical conditions including hemophilia, immune disorders, kidney disease, cancer, trauma and other conditions. Baxter's 48,000 employees apply their expertise in medical devices, pharmaceuticals and biotechnology to help make a meaningful difference in patients'

lives. In short, we strive to make a positive impact on the health and well-being of our local and global communities, and to conduct our operations in a manner that minimizes the use of natural resources and impact on the environment. Because of the life-saving nature of the products that we make, and the significant impact that we have on human health, Baxter has held environmental stewardship as a priority for more than two decades, and has been a pioneer in the areas of environmental financial reporting, management of environmental, safety and health data, and establishing, tracking progress against and reporting on specific environmental goals, including greenhouse gas emissions. We recognize that the health of the planet affects the health of the people who inhabit it. As a healthcare company, we understand this connection and work toward improving both.

I gave my first speech on global warming in 1989, to a group of my colleagues attending the company's annual Environmental Conference. Even then, prior to the more definitive scientific studies that have emerged over the last decade, some environmental professionals and enlightened organizations concluded that their emissions were having an impact on the atmosphere and environment, and began pursuing initiatives to reduce energy use, reduce emissions and eliminate the use of compounds and gases believed to contribute to the greenhouse effect. In the early 1990s, I became very interested in sustainable development, especially after the Earth Summit Conference in 1992, when essentially all the nations of the world adopted sustainable development as world policy.

In the mid-1990s, Baxter began tracking and publicly reporting detailed information regarding energy use, energy cost and associated greenhouse gas emissions from all of Baxter's facilities. Then, in 1997, Baxter set a number of long-term environmental, health and safety (EHS) goals, including a goal to reduce energy usage and associated greenhouse gas emissions by 30%, per unit of production activity, by 2005 from 1996 levels. Also in the late 1990s, the World Business Council on Sustainable Development (WBCSD) and the World Resources Institute (WRI) organized a group of experts and business leaders to develop the WBCSD/ WRI GHG Protocol for calculating greenhouse gas emissions. I was honored to be a part of that group to develop what is now the global

standard businesses and other organizations use to determine their greenhouse gas emissions.

Baxter has continued its leadership on this issue in the ensuing years, becoming one of the initial members of the Pew Center on Global Climate Change's Business Environment Leadership Council, a non-profit, non-partisan independent organization that is facilitating exchange of information and innovative solutions to address global climate change, a charter member of the U.S. EPA's Climate Leaders Program, a voluntary EPA industry-government partnership that encourages companies to develop long-term comprehensive climate change strategies, and a founding member of the Chicago Climate Exchange, the first voluntary pilot carbon trading platform in North America.

Our leadership and commitment to reducing our environmental footprint and advancing the health and welfare of our communities has been sustained over the years not just by good intentions. A key driver for these proactive initiatives over the years at Baxter has been the realization that sound environmental practices can contribute to and in some cases drive competitive advantage.

By **driving greater operating efficiencies**, by piloting and in many cases **adopting new technologies**, and by **sharing ideas and best practices** within the company and through collaborations and voluntary programs sponsored by the EPA and others, we have achieved among other things:

- A 35 percent reduction in greenhouse gas emissions from 1996 through 2004, on a per-unit-of-production value basis;

- A 22 percent improvement in energy efficiency from 1996 through 2004, on a per-unit-of-production value basis; and

- Savings and cost avoidance totaling several millions of dollars each year. In 2004 alone, we estimate our energy savings and cost avoidance exceeded $9 million.

And the benefits go far beyond just cost avoidance and energy or raw material savings. Many of the initiatives we have put in place in our facilities have also brought higher production throughput, higher quality levels, greater production flexibility and optimization of manufacturing assets, reduced scrap materials and waste, as well as improvements in workplace safety.

Given the nature of our products and the nature of our operations, the majority of Baxter's greenhouse gas emissions are carbon dioxide emissions related to energy usage. Therefore, the focus of our greenhouse gas management strategy is energy conservation – specifically, activities and initiatives that improve the energy efficiency of our facility and reduce our energy costs.

**Driving Operating Efficiencies**

At Baxter, we view EHS as an integrated part of our operations, not as a separate or supplemental function. We believe that world-class manufacturing requires excellence in design, process, purchasing, quality and EHS. Successful, world-class companies tap all of those areas of expertise in a seamless manner to reduce waste, drive efficiency and increase productivity.

By applying Lean manufacturing disciplines to our environmental processes, and environmental know-how to our manufacturing operations, we have driven both Lean and Clean concepts and tools through our organization. The results have been greater efficiencies and productivity in our manufacturing facilities, as well as reductions in raw material and energy use, and reduction in waste generation and emissions.

Lean manufacturing is a process designed to remove waste and improve quality and efficiency by continuously identifying, reducing and eliminating non-value-added activities, materials and other resources in the manufacturing process. Lean tools like

value streams and process mapping help identify opportunities to reduce raw materials, wasted motion and scrap by standardizing processes and materials by pinpointing where waste is created. But, Lean manufacturing initiatives, when taken solely on their own, can sometimes have negative environmental consequences.

At Baxter, we have integrated our EHS expertise and professionals into Lean manufacturing initiatives to not only prevent negative environmental consequences, but also to identify opportunities for environmental improvement – we call this Lean and Clean. First, we apply environmental concepts such as waste, water use and emissions to such commonly used lean tools as value stream maps to incorporate environmental considerations into the improvement initiative. Secondly, we apply lean tools to EHS-focused processes as wastewater treatment or safety incident investigations to make our EHS processes more efficient. And, we integrate our tradition pollution prevention techniques into Lean and Clean tools to provide a new way of systematically looking at waste reduction opportunities.

This enables plant personnel to see and think about their processes differently, which can and does inspire innovative solutions. In a number of our manufacturing facilities, projects are underway that use process mapping and other lean manufacturing techniques to reduce the amount of waste or scrap generated in production. By breaking down all of the steps in a specific manufacturing process and assessing the resource allocation in terms of materials, utilities and other "inputs" and "outputs" for each step, our plants are able to identify multiple opportunities to reduce both manufacturing costs and waste. And, since employees themselves generate the ideas, they have a vested interest in seeing the initiatives through to successful completion and are motivated to continue to suggest further improvements.

The American Society for Quality recently recognized our facility in Marion, North Carolina with its Gold Award for International Team Excellence for applying Lean tools to one area of the facility. Through value stream mapping, the team identified a number of opportunities to reconfigure production processes, which yielded increased product

throughput, decreased the amount of manufacturing floor space required to get the work done, and reduced energy and heating, ventilation and air conditioning, or HVAC, requirements. As a result of these changes, the facility estimates it has saved in excess of $100,000 per year in utility costs. While $100,000 a year may not seem like a big number, when you consider that we have 67 manufacturing facilities alone, these kinds of projects and incremental savings quickly add up to much larger numbers and do make a difference.

**Adopting New Technologies**

Over the last decade, Baxter has grown significantly, investing in important expansions and upgrades to its manufacturing base. The capital investments that we have made to expand our manufacturing capacity, assure product quality and advance our product portfolio have also provided great opportunities for us to implement environmental improvement.

For example, we are moving away from sterilization methods that use ethylene oxide to methods that use e-beam sterilization. Baxter is different from most pharmaceutical companies, because we don't manufacture pills and tablets. Instead, most of our products are medications that are administered intravenously or injected, or are devices. The production process for these types of products typically requires much more extensive sterilization procedures, which can be labor and capital intensive. For decades, many of our products have been sterilized using ethylene oxide. In this process, finished product is moved along a conveyor belt into a special room or chamber. Then ethylene oxide gas is released into the room and product exposed to the gas for a certain length of time to render it sterile. The ethylene oxide, which is a toxic gas, is then evacuated from the room by means of vacuum pressure, which is an energy intensive process. Then the product is moved to another well-ventilated area for a period of time to allow for any remaining gas to be released from the product. All of the exhaust gases are required to be treated with a scrubber, also an energy intensive process.

Now, we are increasingly using alternative, more energy efficient methods of sterilization that also have considerably less environmental impact – technologies similar to those used to protect your own mail from anthrax and other contamination. With e-beam sterilization, we use high energy electrons to sterilize our products. These newer methods are significantly more energy efficient and do not have the same requirements for ventilation and treatment of exhaust gases.

Because of the sterilization processes we employ and the clean room environments we must maintain in our facilities in order to produce the highest quality of medical products, our HVAC requirements are very high, and energy intensive, in some cases representing 60 to 70 percent of the energy consumption for the facility. Accordingly, this is an important area of focus for us.

For example, we are currently in the process of expanding our facility in Bloomington, Indiana, and are employing new technology to replace clean rooms and thereby reduce our HVAC and lighting requirements. Through the use of isolators, special pre-assembled self-contained production and laboratory units, we are able to confine and more closely control the higher sterility, ventilation and lighting requirements of a clean room to significantly smaller space. Picture if you will a trailer sized unit, with equipment inside and the walls made up of windows. Depending on the particular application, work may done in the small area within the isolator, or employees may even work outside of the unit, with their hands and arms inserted into glove-like apparatus that extends from the window into the unit. Not only will this approach save a considerable amount in energy costs, less investment is required in HVAC and other infrastructure. And, the risk of employees possibly being exposed to chemicals used in the process is significantly lower.

**Sharing Ideas and Best Practices**

I cannot speak positively enough about the benefits of collaboration – the sharing of ideas, practical advice and best practices within our own organization and through such

formal industry and agency collaborations as the EPA's Climate Leaders and Green Supplier Network programs.

These programs serve as valuable clearinghouses for sharing of best practices, real-world experience and multiple perspectives that really set a strong foundation for continuous environmental improvement across companies and industries. Most importantly, they are helping to address some of the most difficult environmental challenges we face today, and extending the progress that large companies like Baxter have made further into the supply chain – to the smaller and medium sized companies that are our suppliers.

Last year, Baxter spearheaded the participation of the healthcare industry in a public/private initiative called the Green Suppliers Network. The objective is to integrate both Lean and Clean manufacturing principles into the operations of suppliers common to a particular industry. While large companies like Baxter are able to tap the expertise that resides within the organization to drive improvement in operations and reduce their environmental impact, the reality is that few small or medium size companies have that expertise available to them internally. Over the years, we had tried to share our own expertise with select suppliers through conferences, audits, and meetings, but recognized that the impact that we could have was limited while the opportunity for improvement was significant. We learned of the Green Suppliers Network and the impact it was having in other industries, like the automotive industry, and we were immediately attracted to the program. Our Purchasing and Environment, Health and Safety departments have worked to aggressively promote the program with suppliers. So far, seven Baxter suppliers have agreed to participate in the program, in which the U.S. Department of Commerce's Manufacturing Extension Partnership (MEP) and the U.S. EPA provide funds for technical professionals to train suppliers in Lean and Clean manufacturing processes.

For a small fee, a participating supplier receives access to manufacturing consultants experienced in process improvement and waste reduction, including a week-long review of the supplier's operations, help in administering relevant training and expertise, and a

full report detailing areas for improvement and change. Experts from EPA's state pollution prevention technical programs also lend their support. This program brings expertise and insight to these companies that would normally not be considered or would be unaffordable.

The first of our seven suppliers to participate already has implemented a number of changes and yielded impressive results, significantly reducing energy consumption and therefore cost, and significantly reducing hazardous waste generation and emissions – savings that have far exceeded the initial fee and modest capital investments required. The environmental and economic benefits realized have motivated this supplier to continue with other initiatives. We look forward to similar successes with the other suppliers that are participating.

While we highly value external collaborations such as these, we also recognize that some of the best ideas can and do come from within our own company. We have created a number of ways to share and leverage those ideas and expertise that resides within our global organizations, including global energy engineering conferences, training sessions and awards.

We held our last biannual global energy engineering conference in September 2004 in Austin, Texas, with 60 Baxter energy managers representing 44 facilities from 21 different countries attended the weeklong conference. The conference included training sessions dedicated to maximizing the performance of plant utility systems and sharing information on best demonstrated energy practices. At every biannual conference, each manufacturing facility is asked to identify three specific energy projects that its energy management team will commit to implement during the next two-year period. At the next energy conference, the locations report the results of their three key projects to all conference attendees. This open sharing of both successful energy projects and unforeseen challenges has been beneficial in strengthening individual expertise and broadening institutional technical knowledge. As part of the conference, we also present

awards to the engineers and facilities that achieve outstanding performance in such areas as:

- Largest percentage of energy cost saved per unit of production
- Largest percentage of energy usage saved per unit of production
- Energy project that has the widest application throughout Baxter
- Most innovative cost saving project implemented at Baxter
- Largest percentage of energy saved of total facility energy cost in a non-manufacturing facility
- Special recognition for outstanding contribution to Baxter's energy program

Our next energy conference is scheduled for the fall of 2006, and I am very excited to hear updates from the facilities on the three projects that they each committed to in 2004.

While we have achieved reductions in greenhouse gas emissions and improvements in energy efficiency over the years, we recognize that much more needs to be done. We are a very global company, with more than half of our sales and two-thirds of our employees located outside the United States. Our 67 manufacturing facilities are located in 28 countries, and no matter where a facility is located, all are held to the same high level of EHS policies, standards and metrics.

We are a global company and we must remain globally competitive. Accordingly, we must closely monitor actions proposed or taken by other countries to address climate change, such as implementing regional or national carbon cap or trade systems. One of our manufacturing facilities in Ireland will be affected by phase one of the EU Emissions Trading Directive, which establishes a mandatory carbon cap-and-trade scheme. Climate taxes also are being implemented in some countries. We currently pay climate taxes on our electricity use in the United Kingdom. Here in the United States, 132 mayors from across the country recently announced that they would voluntarily adopt the Kyoto Protocol reduction target for their cities. In 2001, Baxter developed its formal position on climate change, which states that we believe, "The Kyoto agreement represents a first

step in the international process, but more must be done, both to implement the market-based mechanisms that were adopted in principle in Kyoto and to more fully involve all countries in the solution."

Fortunately, because of our foresight on this issue, because of the significant experience we have gained over the years in reducing our greenhouse gas emissions and energy use, and the experience we have gained through participation in the Chicago Climate Exchange's voluntary program for capping and trading greenhouse gas emissions, we expect to be well-positioned to respond to these and other emerging cap-and-trade initiatives.

Our EHS policy clearly states that we are committed to continuous improvement in environmental, health and safety performance. We strive to conserve resources and minimize or eliminate adverse EHS effects and risks that may be associated with our products, services and operations. Because we self-manufacture nearly 90 percent of the products that we sell, and because we have in place talented environmental professionals in all of our major facilities, we are able to more closely monitor our environmental impact, and implement appropriate changes.

While we recognize that we are in the minority of companies that voluntarily have taken action on this issue, we are encouraged by the lessons that our own experience has taught us:

- that reasonable improvements in energy conservation and emissions reductions are possible without huge investment;

- that investments in new technology and improvements in manufacturing process can bring significant benefits in quality, optimal use of manufacturing assets, reduced raw material costs, and improved workplace safety as well as reduced energy requirements and associated greenhouse gas emissions; and

- that companies that have been forward-looking on this issue are in the best position to build upon the momentum they have created and better compete on a global basis.

In summary, we believe that it is possible to responsibly address environmental issues in a manner that provides economic benefit and competitive advantage. Our experience has proven to us that the business case is indeed there for taking action to reduce impact on our climate and environment by decreasing energy consumption and lowering greenhouse gas emissions.

Thank you for this opportunity to share with you some of our experiences and perspectives on climate change.